

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
1 September 2005 (01.09.2005)

PCT

(10) International Publication Number
WO 2005/079302 A2

(51) International Patent Classification: Not classified

(21) International Application Number:
PCT/US2005/004412

(22) International Filing Date: 14 February 2005 (14.02.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/544,582 13 February 2004 (13.02.2004) US

(71) Applicant (for all designated States except US): **ARGO-TECH CORPORATION** [US/US]; 23555 Euclid Avenue, Cleveland, OHIO (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **CHIU, Hing, L.** [US/US]; 7615 Lindsay Lane, Solon, OH 44139 (US).

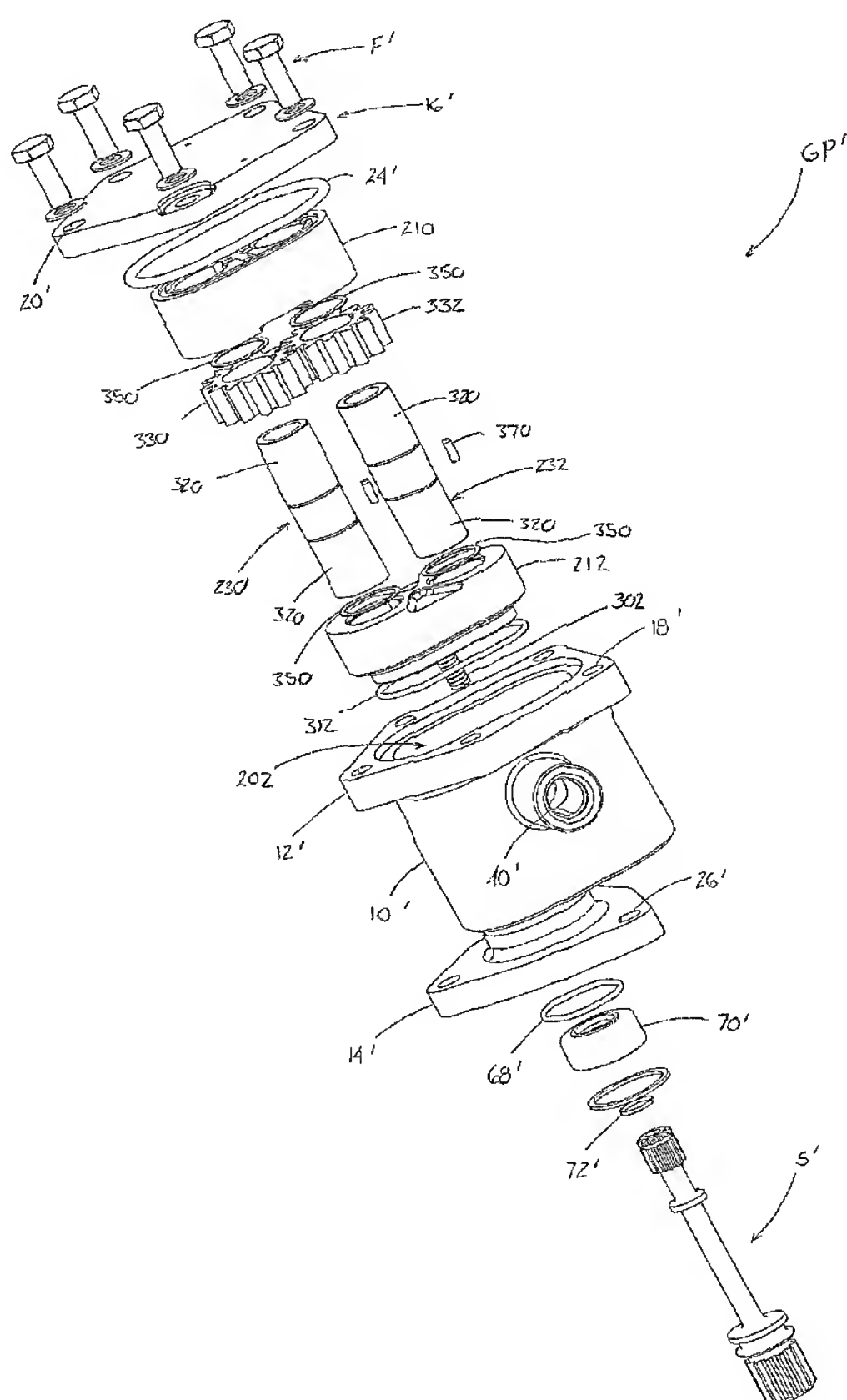
(74) Agent: **NAUMAN, Timothy, E.**; Fay, Sharpe, Fagan, Minnich & McKee, LLP, 7th Floor, 1100 Superior Avenue, Cleveland, OH 44114 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,

[Continued on next page]

(54) Title: LOW COST GEAR FUEL PUMP



(57) Abstract: The present invention is directed to a gear pump having a housing with an interior pumping chamber and an inlet to and outlet from the chamber, the outlet being spaced from the inlet. A pair of rotating gears is located in the chamber, the gears including teeth which mesh during gear rotation. The gears are preferably powder metal construction and fixedly secured on a shaft having an axis of rotation. A pair of one-piece bearings is located in the chamber and journal one of first and second end portions of each shaft. The one-piece bearings provide precise alignment of the first and second end portions of the shafts and maintain the shafts in parallel relation.



SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *without international search report and to be republished upon receipt of that report*